

known to women, and used by them in their private dish-washing. It is true that they deny the existence of any such substance, and insist that frying-pans can be easily washed, provided the washer has ordinary intelligence and a desire to do his duty. We may assume, however, that they are unwilling to reveal their dish-washing secret to men, thinking that by a wise secrecy they can make a show of superiority to our sex. We must draw this secret from them, for until that is done there will always be a dark and greasy lining to the silver cloud of open-air life.

GREASE.

There is but one drawback to the delights of camping out. Persons who are accustomed to sleep only in well appointed beds and to eat what are called by Western statesmen "square meals" fancy that rain and cold and hard beds and insects and general discomfort are inseparable from camping out. This is wholly a mistake, and were bad weather and depraved insects the worst evils to be overcome while living under canvas, such a life would be full of unalloyed delight. But there are dishes which must be washed, and man is so made as to be unable to wash dishes with any success. The unwashed dishes of breakfast, dinner, and supper hang over the camper-out—to use a metaphor of probable Irish origin—like a dark cloud, and seriously obscure the brightness of his daily life.

It is remarkable with what eagerness men will assume every camp duty except that of dish-washing. He who has never cooked before will volunteer to cook an intricate breakfast or an abstruse dinner solely in order that he may be relieved of washing the dishes. Men have been known to walk miles in order to buy milk, to labor for hours in building a "lean-to," or even to dig for bait in places where the soil does not average more than one worm to the square yard—all being animated with the same ardent desire to let somebody else wash dishes. It is not that the task is felt to be degrading, nor solely because it is a difficult one. There are dishes, such as coffee-cups and knives, which can be easily and quickly washed, and which any energetic man would be perfectly willing to wash. The real reason of the unusual hatred of dish-washing among men is the utter impossibility of getting the grease out of the frying-pan.

It may be asked by superficial thinkers, or by those who have no experimental knowledge of the subject, Why is it that there should be so much difficulty in removing a given quantity of grease from a given utensil? The truth lies in the self-expansive power of grease—a peculiarity of that objectionable substance known only to scientific persons and to campers-out, and capable of driving the most able philosopher to despair and the use of strong language. A given quantity of grease could, of course, be removed from any frying-pan were it to remain a given quantity. When, however, it is found that the more grease the dish-washer removes the more there is still left to be removed, the hopeless nature of his task becomes apparent.

Prof. HARKNESS, of the Smithsonian Institution, has proved by actual experiment that lard when brought in contact with a frying-pan expands to four times its original bulk. He undertook, while camping out in China in connection with the national transit of Venus picnic, to fry five small fish in an ordinary frying-pan. He placed in the frying-pan half a pound of lard, fried the fish in it, and afterward drew the fatal lot which compelled him to act as dish-washer. He labored for one hour and thirty minutes at that frying-pan. During this period he distributed lard all over his clothing and over a large part of the Chinese Province of Hoang-Chin. He also filled two tin pint cups with lard taken from the frying-pan, and when he finally ceased the effort to wash that exasperating utensil and called for a pair of scales it was evident to every observer that there was a great deal more lard in that neighborhood than there had been two hours earlier. The testimony of the scales showed that there was half a pound of lard on the Professor's clothing, another half-pound in the two tin cups, and another half-pound still in the frying-pan, while it was estimated that at least a like quantity was distributed over the surface of the Hoang-Chin Province. Thus the original amount of lard had quadrupled itself, and rendered the effort to clean the frying-pan unsuccessful. Prof. HARKNESS tried the same experiment six consecutive times, and was thus enabled to ascertain that lard, when placed in a frying-pan which is afterward subjected to the washing process, expands until it is 4.07 times its original bulk.

Perseverance, hot water, and soap are all very well, but how can they make clean a frying-pan in which grease forms as fast as it is removed? So impossible is it to get the grease out of a frying-pan that the unfortunate camper-out who is assigned to wash dishes has often been compelled to adopt illicit schemes to convince his fellows that he has successfully cleaned the frying-pan. The most common of these dishonest practices is perhaps the most objectionable. It consists in covering the bottom of the frying-pan with a fine layer of sand, and then heating the frying-pan on the fire until the sand forms a brown crust over the grease. The wicked dish-washer then announces that the bottom of the frying-pan has been somewhat blistered by the heat, but that it is perfectly clean, and as a rule this mendacious explanation is readily accepted by his fellows. The result is that when the frying-pan is next used, whatever article of food is cooked in it becomes impregnated with sand, whereby the innocent cook is subjected to undeserved language and sometimes to clubs.

It is evident that chemistry can alone furnish the means of properly cleaning the frying-pan. What is needed is something which when mixed with the grease will instantly combine with it and produce soap. In all probability some such substance is